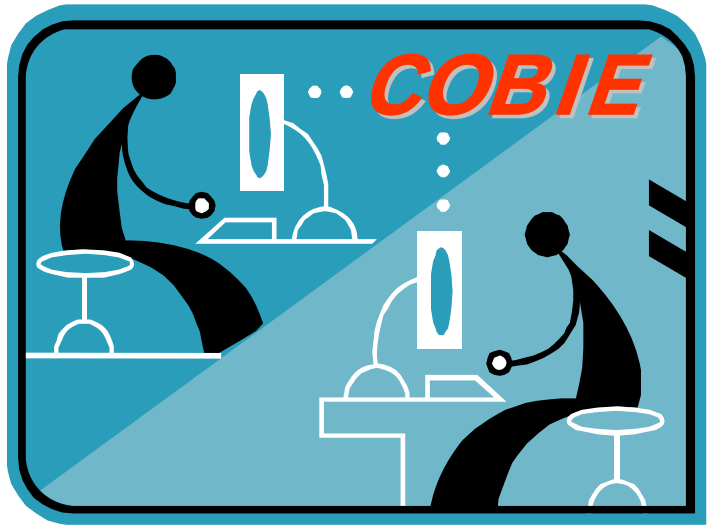
Construction
Operations
Building
Information
Exchange

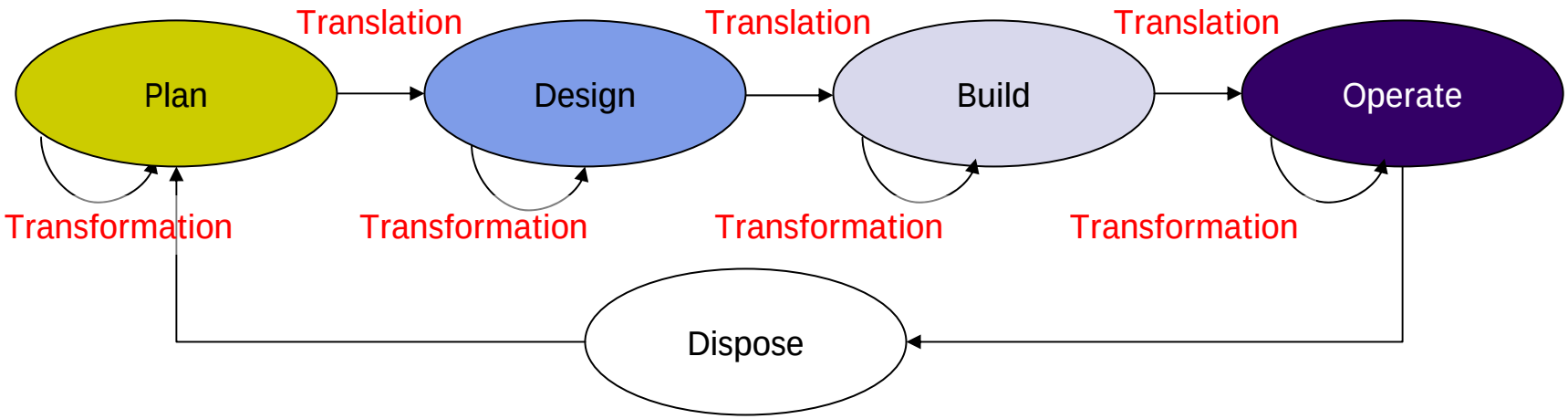


a national project to streamline
O&M information handoff

outline

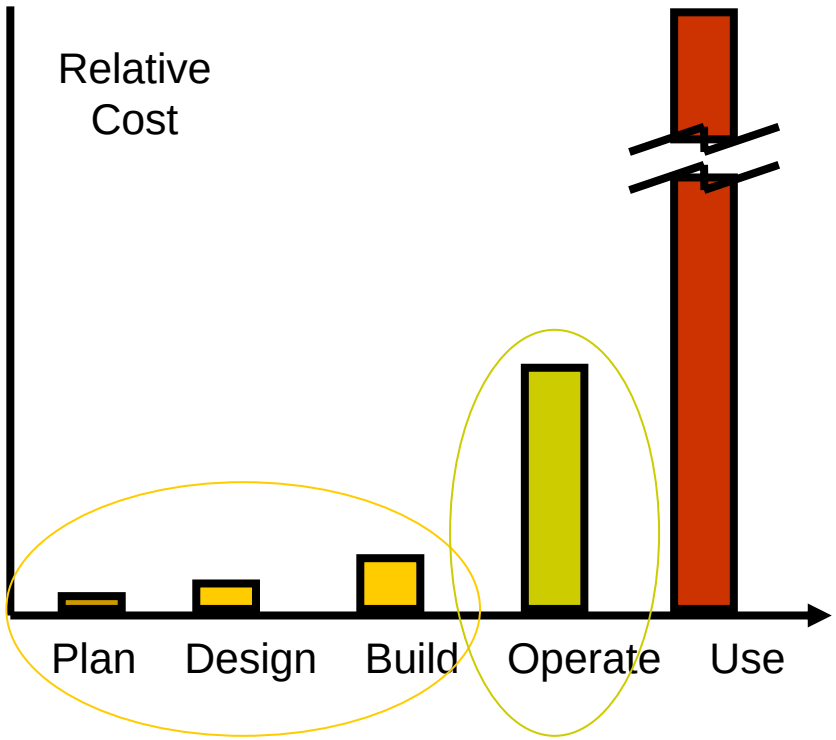
- why have a COBIE project?
- hasn’t someone else already done this?
- how will we know if we have it right?
- what is COBIE? who is doing it, when will it be done?
- what does this mean on my project?
- how can I get involved?

critical data lost in building process



- decisions made as ideas & parts are transformed into designs & buildings are not captured
- translation of information for downstream use looses much of what is known during the previous phase
- increased “owner” cost due to data losses = $14.8B annually “Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industries,” NIST GCR 04-867/Aug 2004.

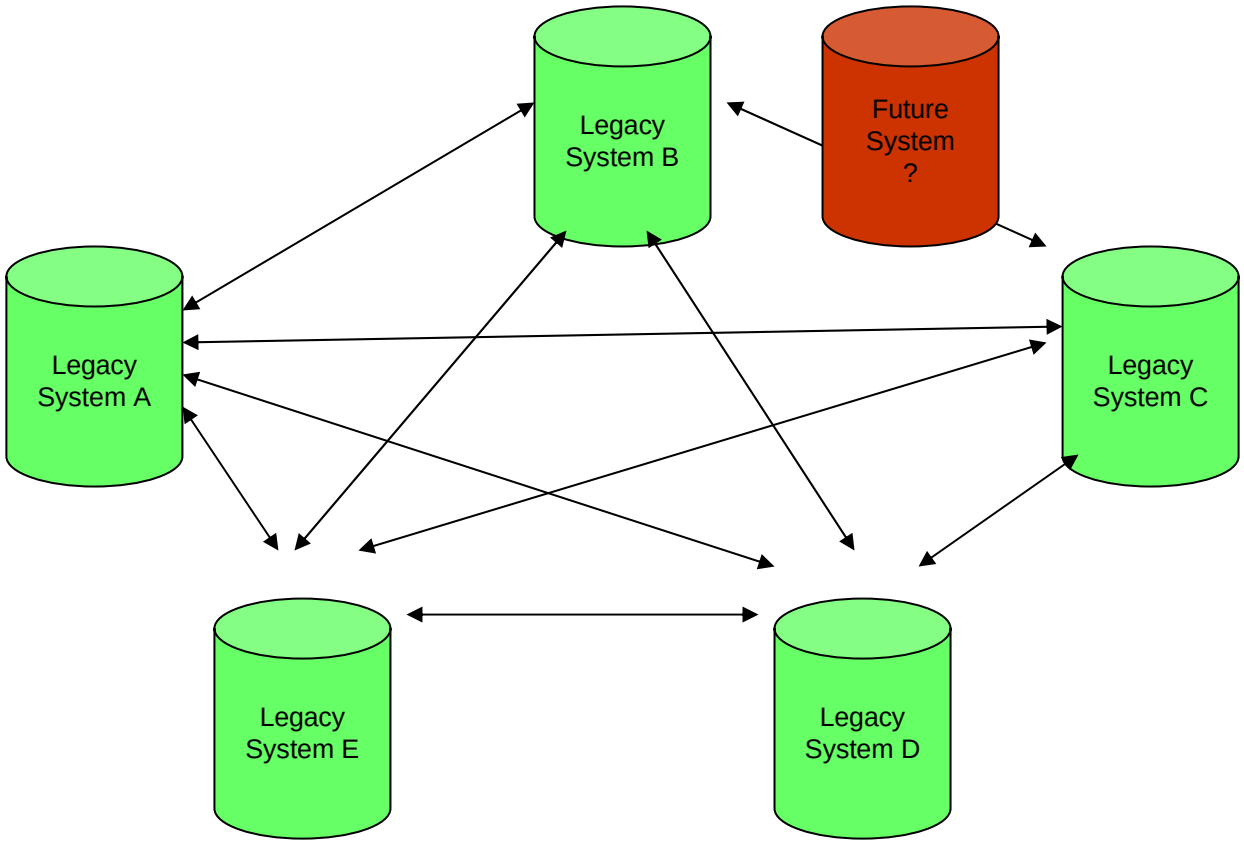
current increased costs include



- Additional payments for items already under warranty
- Increased costs of replacement parts ordering
- Increased down time due to missing system information
- Inappropriate utilization resulting in decreased performance or unneeded new construction
- Space underutilization resulting in over-building or higher energy costs
- Inability to optimize alternative facility use
- Inability to simulate contingency operations

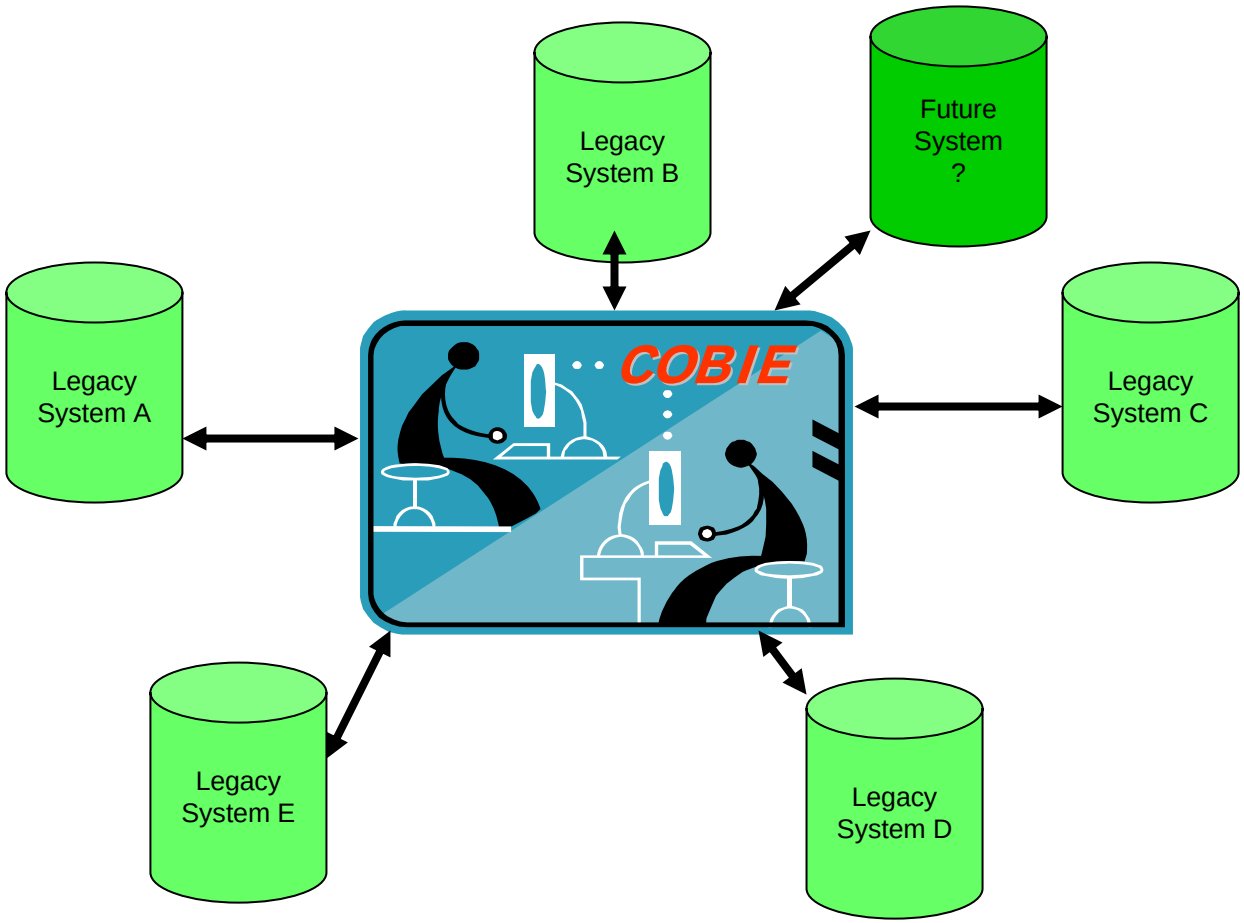
what have people tried?

Directly linking contractor and government systems means increasing cost and complexity...



what is proposed in this project?

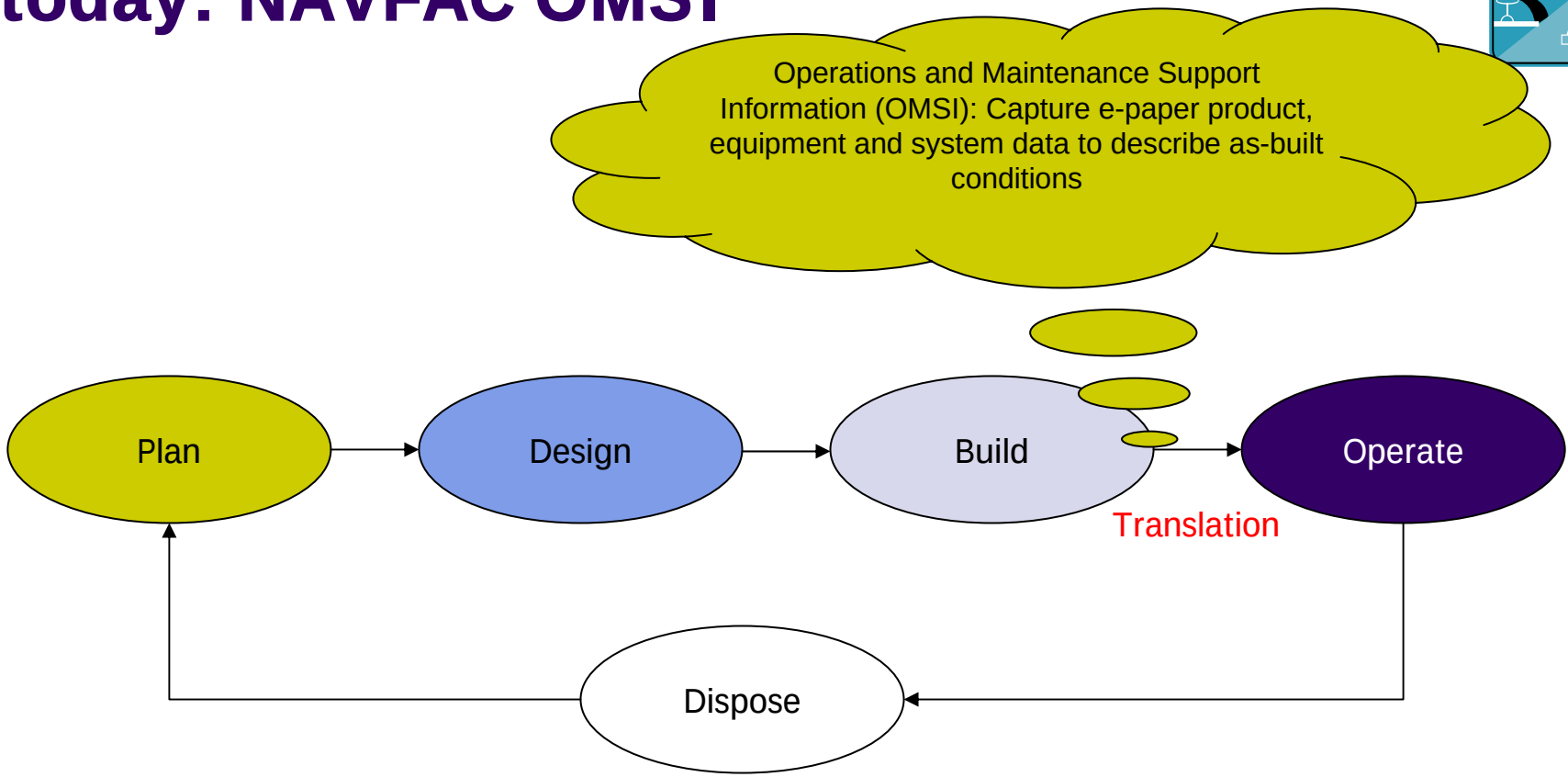
use of international recognized standard and data definitions
requirements allow write-once read when/where needed



hasn't someone else already done this?

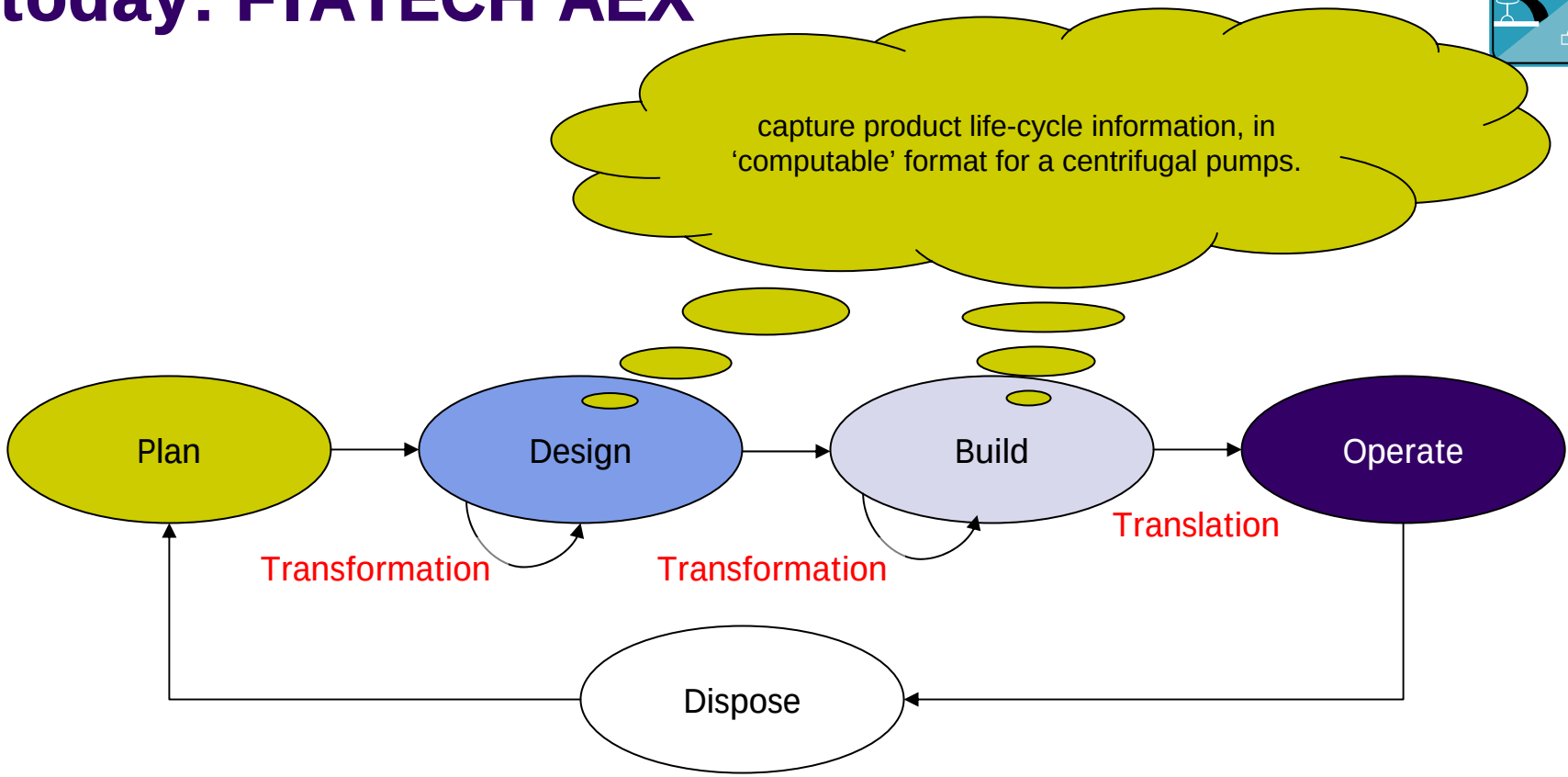
- International Alliance for Interoperability (IAI).
  Industry Foundation Classes (IFC). Standards Development
- National Institute of Science and Technology, FIATECH.
  aex for equipment life cycle, Building Handover Guide
- National Institute of Building Sciences (NIBS).
  National Building Information Model Standard
- GSA.
  address cost-overruns w/better architectural program definition
- NAVFAC.
  Operations & Maintenance System Information (OMSI) e-paper
- NASA.
  coordinating interagency efforts and piloting COBIE. Real unification of UFGS and UFC's. SpecsIntact.
- Engineering Research and Development Center
  government standard extranet platform ProjNet^{sm}
  development team chair @ National Building Information Model Standard

today: NAVFAC OMSI



- Waiting until the end of the project costs ~$40K per capital project
- Information on single CD is more easily lost than paper boxes!
- Virtually all information is available upstream

today: FIATECH AEX



- Provides powerful example of interoperable data decreases effort
- Demonstrates entire universe of data not relevant for info exchange
- Demonstrates software vendors, mfgs, and suppliers interest

how will we know if we have it right?

- user transparent
- no cost to O&M office
- costs less to create & manage than current paper-based method

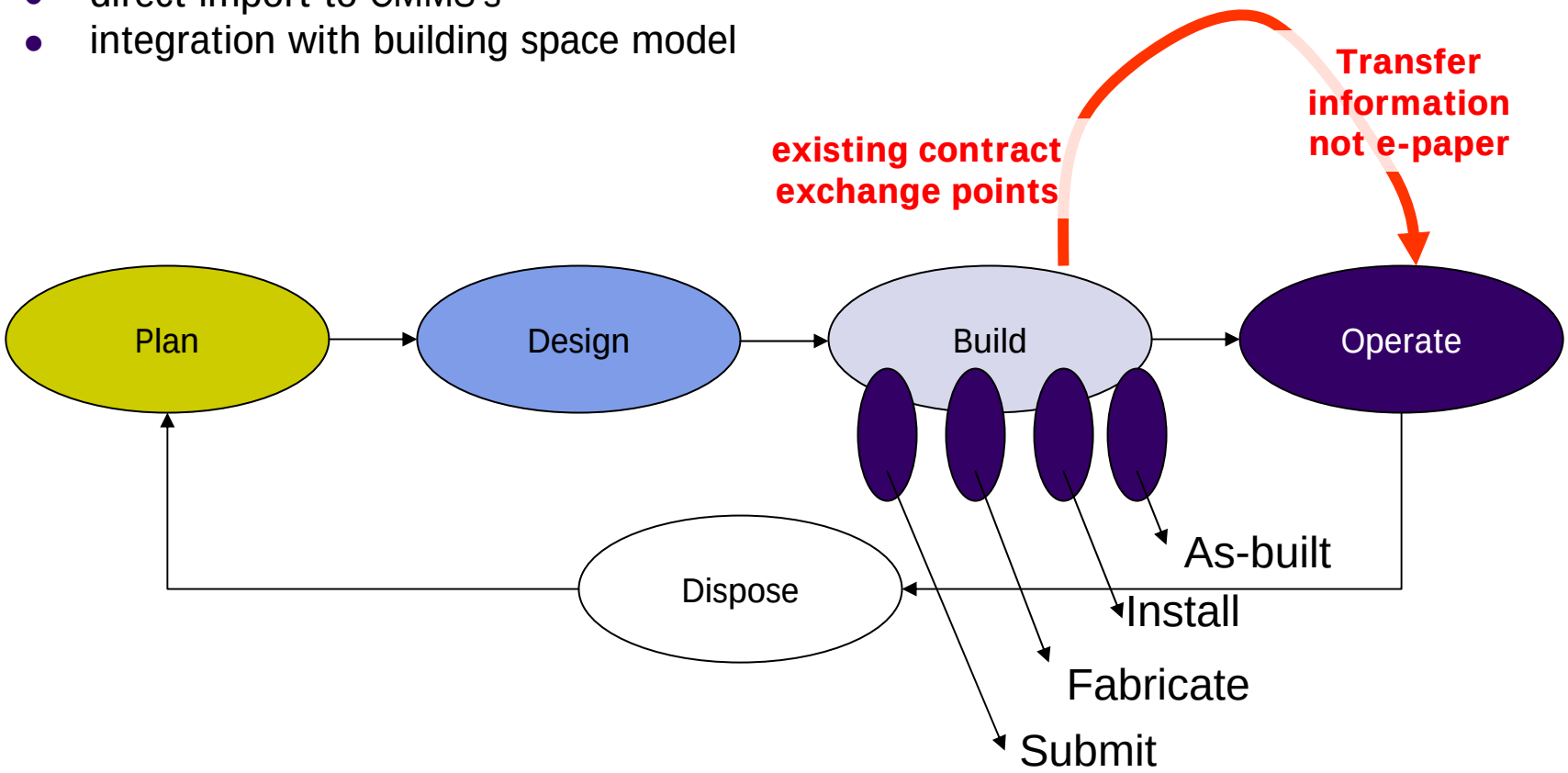
- requirements must be clearly identified
- information can be captured as work is being accomplished
- acceptable to all tiers of contractors, suppliers, subs, etc..parties

- simply updated format for existing deliverables/contracts
- framework to store information for later exchange/retrieval

- cost of information exchange must be nil
- provide real-time information exchange

what is COBIE?

- gather information during construction submittal and payment
- update UFGS submittal format from paper to COBIE
- define min. reqd. information submittals to verify performance
- direct import to CMMS's
- integration with building space model



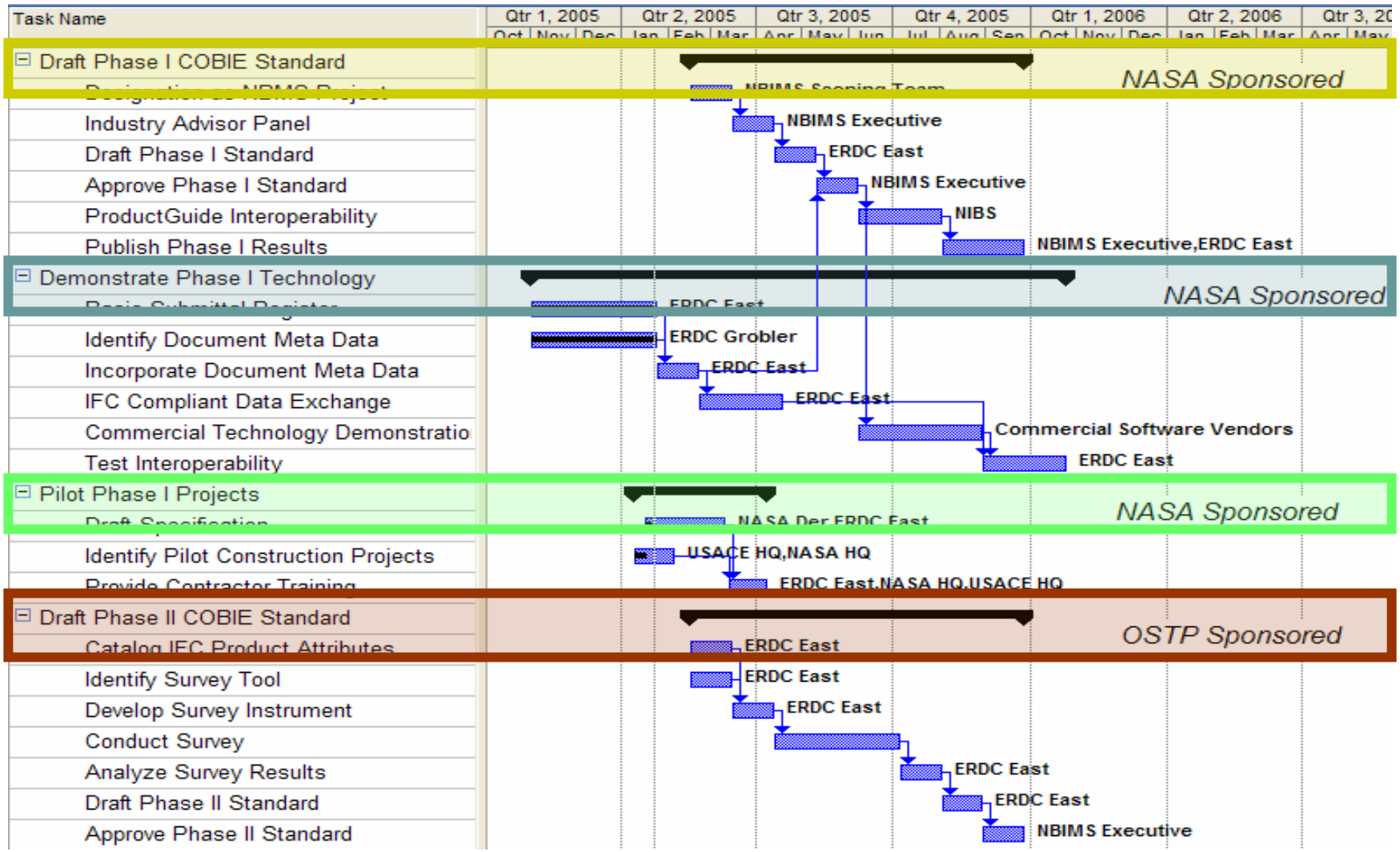
COBIE I - standard & pilot (FY06)

- What format will information take?
  - documents in PDF
  - meta-data first in web-based data input forms
  - limits direct input to warranty & equipment nameplates
  - stand-alone forms emailed with submittals may be tested
- What contract points will be used?
  - submittal, equipment delivery payment, commissioning, as-built
  - updated spec combination of UFGS 01781 and 01330
- Which agencies have asked to pilot?
  - NASA, Kennedy Space Center
  - USACE, Mississippi Valley Region
- When might test start
  - draft spec has requested by 1 April 06
  - test contingent upon identification of actual projects

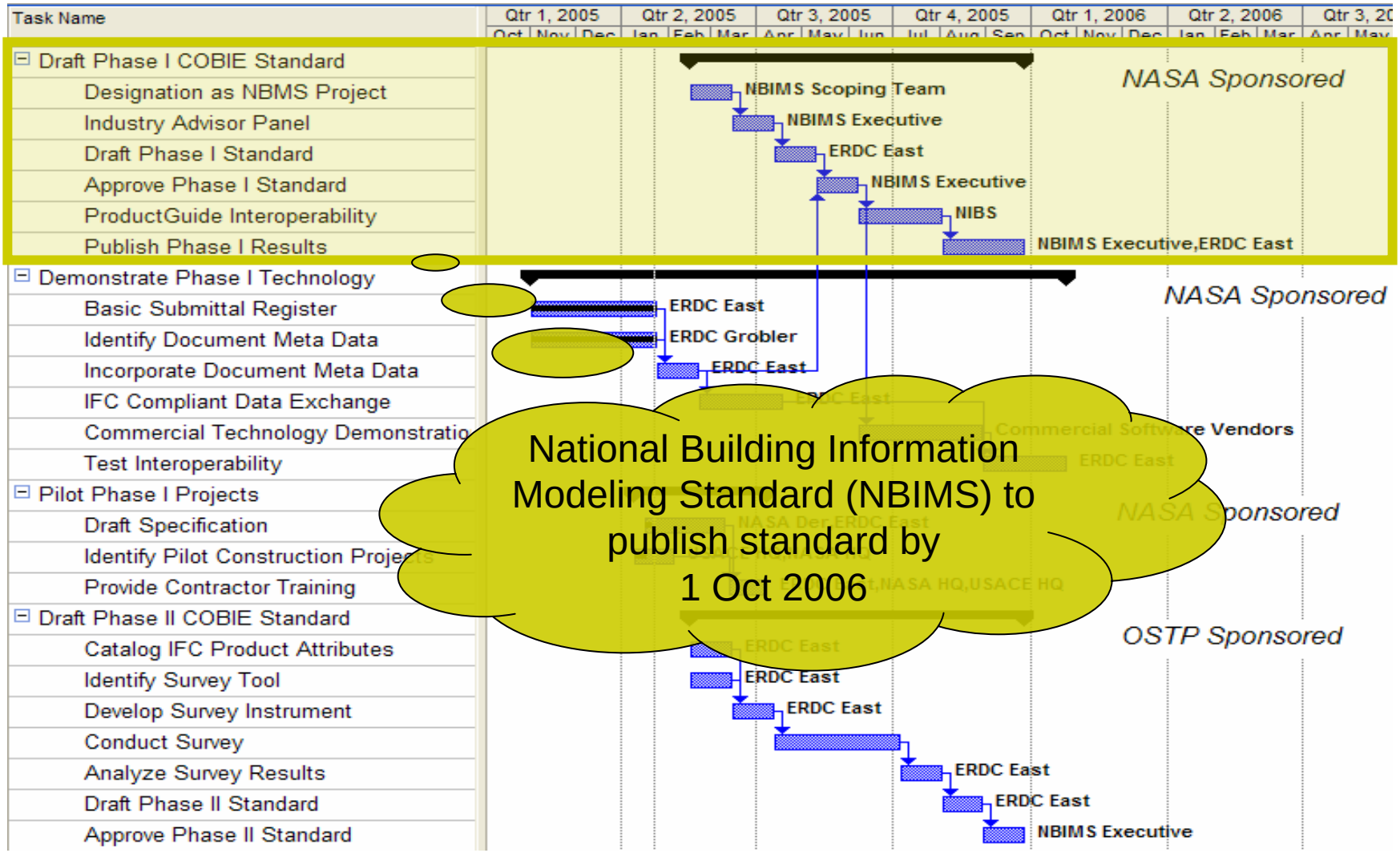
COBIE II: enhanced standard (FY06)

- What data should be extracted to verify product performance?
  - survey of submittal reviewers
  - include ‘receipt acknowledged’ and approval submittals
  - to certify/agree to National Standard requirement
- Coordinate with WBDG ProductGuide
  - manufacture's data is provided once
  - provide contractor tools to submit from ProductGuide
  - software firms agree to National Standard implementation
- Determine interoperable format for data exchange
  - IFC modeling
  - update COTS and GOTS software as required

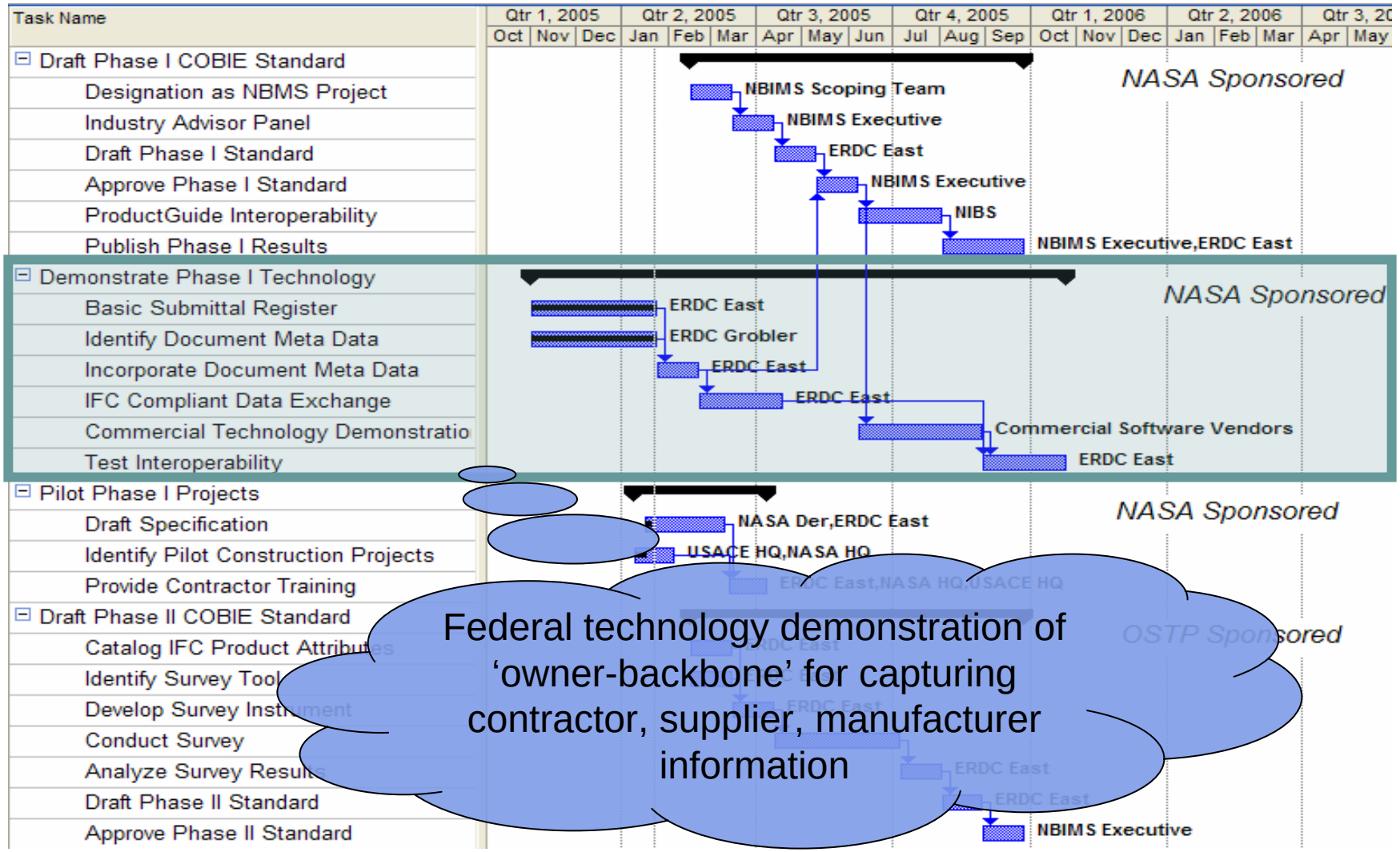
who is doing it, when will it be done?



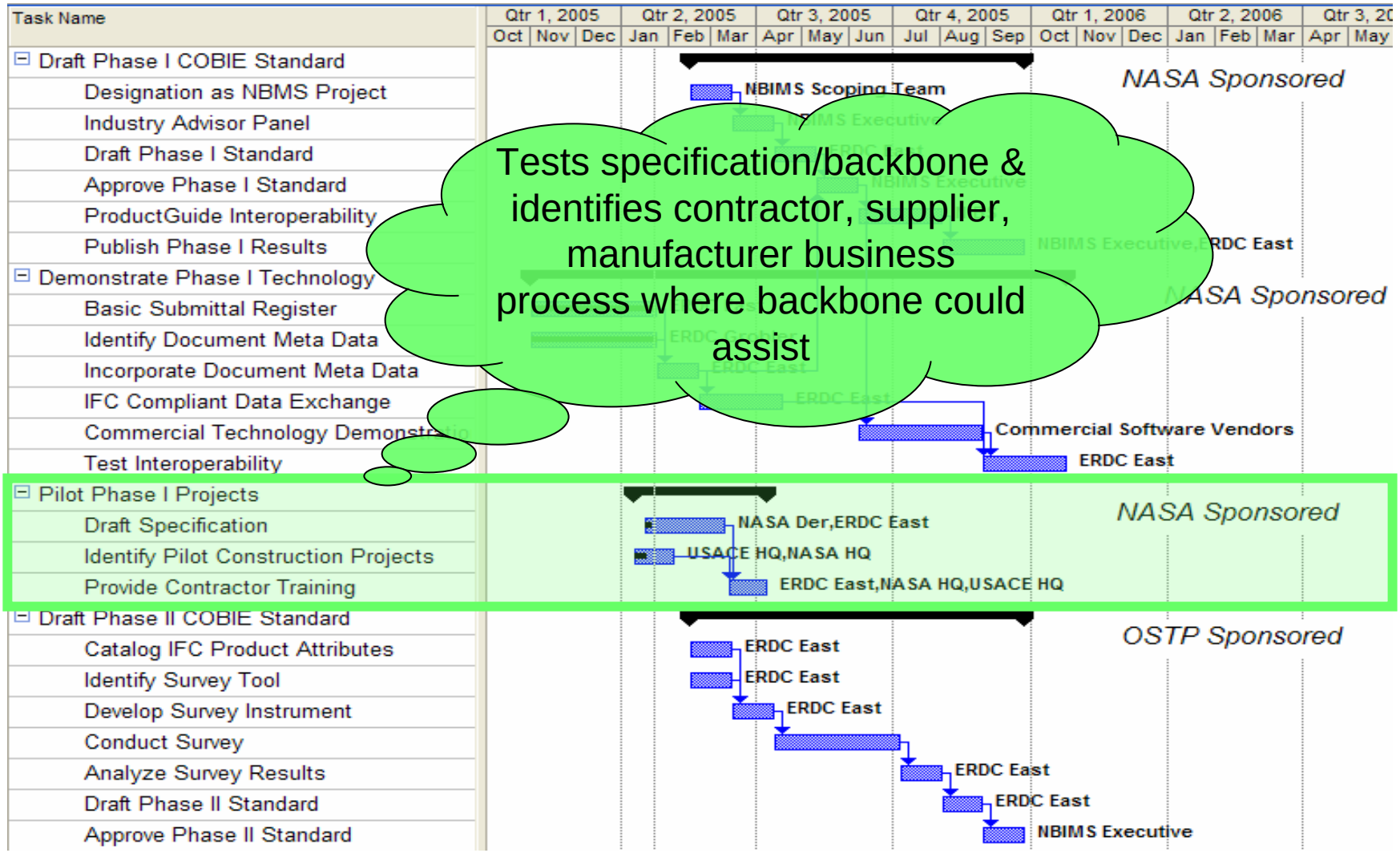
project schedule – phase I standard



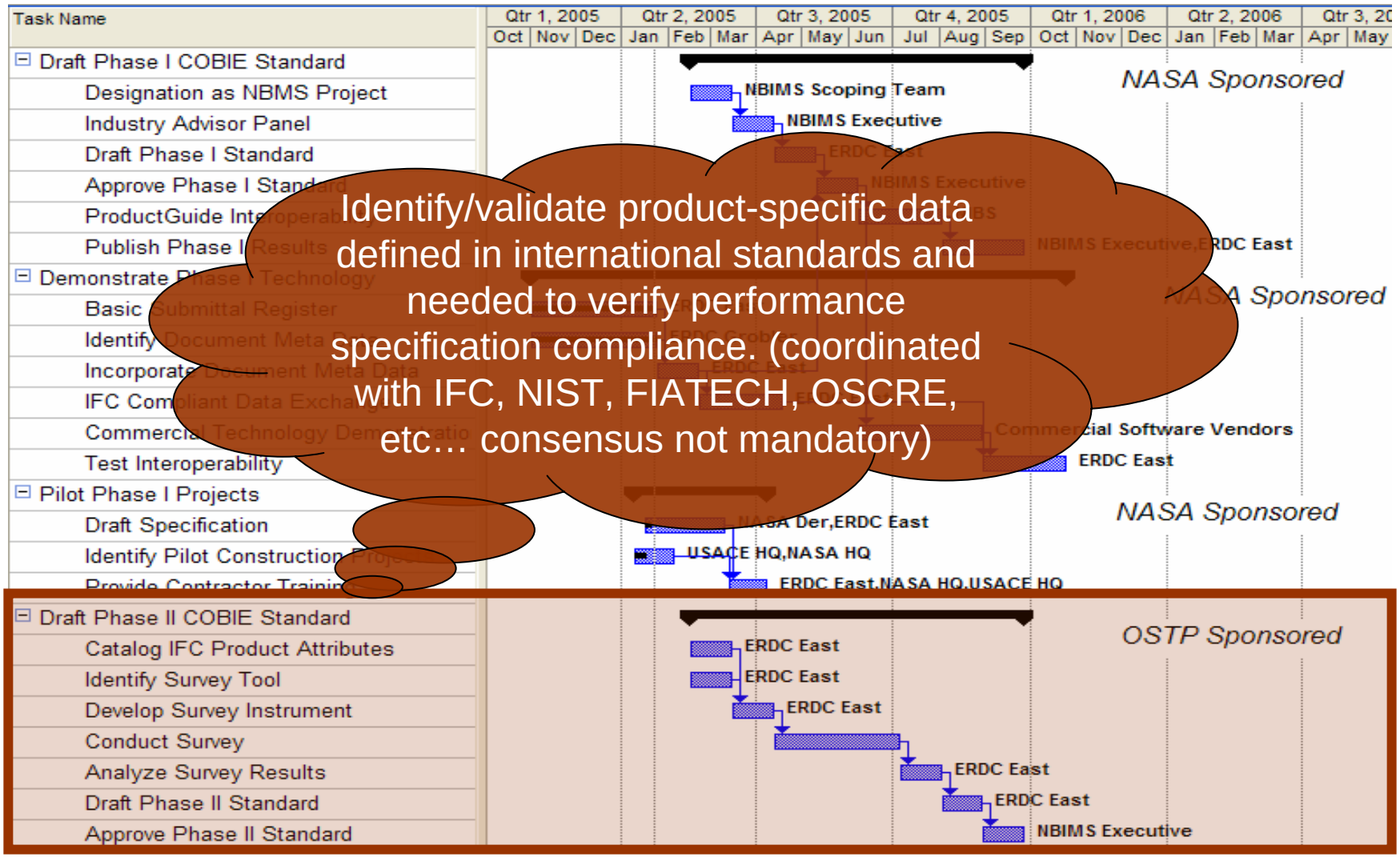
project schedule – phase I demo



project schedule – phase I pilot



project schedule – phase II standard



what does this mean to my project?

- Our goal is user transparency.
  - capture construction information at point of creation
  - determine usefulness of ‘owner backbone’
  - provide process-context tools to assist supply chain

easy to use

- Our goal is to begin widespread use in FY07
  - software demonstrations necessary but insufficient
  - draft specs & pilot allow broad application

get ready

- Our goal is to start the snowball and watch it grow over time
  - build toward full solution in phases
  - consensus reached through spiral development model

you can help

how can I get involved?

- government agency
  - identify pilot projects
  - review draft specifications
  - commit to and communicate a FY07 roll-out
- software vendor
  - industry advisory committee
  - make import/export transparent
- designer, consultant, builder, subcontractor, supplier
  - industry advisory committee
  - participate in pilot
- manufacturer
  - prepare standard cut sheets & data
  - assist in survey to identify minimum data elements
  - provide information to NIBS ProductGuide